Nanocomposite Textiles as Lightweight, Low-Volume Deployable Antenna Systems, Phase I

Completed Technology Project (2007 - 2007)

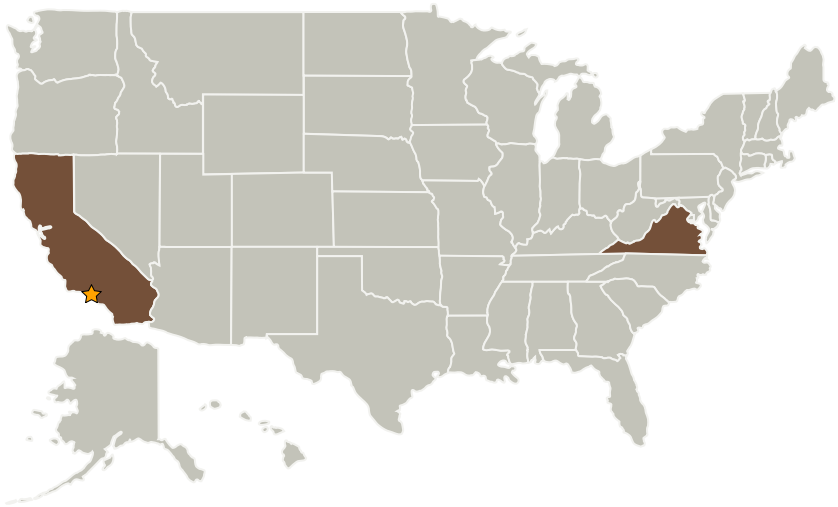
Project Introduction

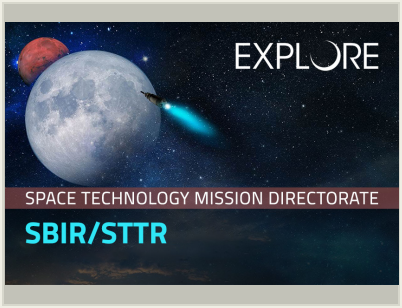
This Phase I SBIR program will result in the application and characterization of highly conductive, inexpensive, nanostructured textiles and composites for ultra lightweight, low-volume antenna applications. Metal Rubber

TM

is a highly successful product for NanoSonic and has tested well for microwave applications; it has now been extended to similar textile based conductive materials. In this effort, these materials would be characterized and assembled into composites. In Phase II and beyond, the materials would be used to construct antennas with applications intended as deployable, conformal antenna systems for NASA platforms. Although this mesh material could be easily incorporated into reflector design, primary emphasis will be on the construction of mesh patch antennas in the L-band. This is convenient for ease of construction but would also serve the NASA by extending the application of larger aperture radar. Additionally, these materials would easily be extended into lower bands for terrestrial and higher bands for spaceborne applications. In order to design the antennas, NanoSonic will work with a major research university that is a world leader in computational electromagnetics. Additionally, NanoSonic will work with a major NASA prime contractor that has direct ties to multiple NASA platforms.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Nanosonic, Inc.	Supporting Organization	Industry	Pembroke, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.6 Innovative Antennas